

Mineral Industry Surveys

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MOLYBDENUM IN APRIL 2003

Domestic production of molybdenum in concentrate in April 2003 was about 13% less than that of the previous month and was about 35% more than that of April 2002, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 8,250 metric tons (t) at the beginning of 2003 and 7,150 t at the end of April.

According to Ryan's Notes (2003c), the April monthly averages for U.S. ferromolybdenum (FeMo) prices ranged from \$5.261 to \$5.528 per pound of molybdenum content, compared with \$4.950 to \$5.275 in March. European FeMo monthly averages ranged from \$11.733 to \$12.044 per kilogram of molybdenum content in April as compared with \$11.813 to \$12.206 in March. In April, worldwide molybdenum oxide prices ranged from \$4.767 to \$5.078 per pound versus \$4.513 to \$4.850 in March.

FeMo prices moved up at the end of April after trending down earlier in the month (Ryan's Notes, 2003a). European FeMo prices were booked at \$12.20 to \$12.40 per kilogram and Chinese material was booked at just under \$11 per kilogram. Molybdenum oxide prices were stable at about \$5 per pound, and traders continued to complain that FeMo prices were still low relative to the oxide price.

BHP Billiton Ltd. produced 774 t of molybdenum at the Highland Valley, British Columbia, copper/molybdenum mine

in the first quarter ending March 31, 2003, compared with 260 t in the same quarter of 2002 (Ryan's Notes, 2003a). A company spokesman attributed the increase in production to mining of higher grade ore bodies. Chile exported \$60.6 million worth of molybdenum oxide and FeMo in the first quarter of 2003, up almost 20% from that of the first quarter 2002 (Platts Metals Week, 2003). Chile is the world's largest producer of molybdenum ore, a byproduct at many of Chile's large copper mines, producing around 34,000 t in 2002.

CS Metals continues to improve operations at its catalyst recovery operations at Port Nickel, LA, and now is operating every day according to a company representative (Ryan's Notes, 2003b). At capacity, CS Metals could recover 1,820 metric tons per year (t/yr) of molybdenum oxide and 2,270 t/yr of vanadium pentoxide from spent catalysts. The plant is now 100% owned by CRI Metal Products since Stratcor sold its 50% interest in September 2002.

References Cited

- Platts Metals Week, 2003, Chile Q1 moly exports \$60.6-mil: Platts Metals Week, v. 74, no. 17, April 28, p. 7.
Ryan's Notes, 2003a, BHP Billiton produced 260 mt of moly; Ferromoly prices in Europe: Ryan's Notes, v. 9, no. 17, April 28, p. 3.
Ryan's Notes, 2003b, CS Metals is continuing to improve operations: Ryan's Notes, v. 9, no. 14, April 7, p. 3.
Ryan's Notes, 2003c, [untitled]: Ryan's Notes, v. 9, no. 18, May 5, p. 4.

TABLE 1
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS¹

(Metric tons, contained molybdenum)

	2002	2003	
	January- December ^p	March	April Year to date
Production	32,400	3,010 ^r	2,610 11,300
Shipments: ²			
Domestic	21,200	1,860	1,430 6,990
Export	11,100	1,060 ^r	912 3,930

^rRevised. ^pPreliminary.

¹Data are rounded to no more than three significant digits.

²As reported by producers.

TABLE 2
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM
PRODUCTS¹

(Metric tons, contained molybdenum)

	2002	2003	
	January- December ^p	March	April Year to date
Gross production	31,300	3,070	3,310 12,100
Internal consumption ²	20,700	2,340	2,290 9,540
Gross shipments	27,500	2,750 ^r	2,830 9,110

^rRevised. ^pPreliminary.

¹Data are rounded to no more than three significant digits.

²Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS¹

(Kilograms, contained molybdenum)

End use	Molybdic oxides	Ferro molyb- denum ²	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2003, March:						
Steel:						
Carbon	11,300 ^r	22,000	--	--	W	33,300
High-strength low-alloy	31,700 ^r	7,650 ^r	--	--	--	39,350 ^r
Stainless and heat-resisting	239,000 ^r	78,900 ^r	--	--	8,522 ^r	326,422 ^r
Full alloy	117,000 ^r	189,000 ^r	--	--	2,381 ^r	308,381 ^r
Tool	79,300 ^r	W	--	--	W	79,300
Total	478,000 ^r	298,000 ^r	--	--	10,903 ^r	786,753 ^r
Cast irons (gray, malleable, and ductile iron)	W	21,300 ^r	--	--	763	22,063
Superalloys	51,900	W	--	(3)	92,641 ^r	144,541 ^r
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	182	2,950	--	--	6,264 ^r	9,396 ^r
Mill products made from metal powder ⁴	--	--	--	--	104,619	104,619
Cemented carbides and related products ⁵	--	--	--	--	11	11
Chemical and ceramic uses:				W		
Pigments	--	--	W	--		W
Catalysts	77,300	--	W	--	W	77,300
Other	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	13,947 ^r	13,947 ^r
Other	1,090	12,900 ^r	76,532 ^r	--	4,908 ^r	95,430 ^r
Grand total	609,000 ^r	335,000 ^r	76,532 ^r	--	234,061 ^r	1,254,066 ^r
Stocks, March 31, 2003	325,000 ^r	234,000 ^r	6,283	39,536 ^r	884,330 ^r	1,489,149 ^r
2003, April:						
Steel:						
Carbon	10,800	W	--	--	W	10,800
High-strength low-alloy	32,000	7,320	--	--	--	39,400
Stainless and heat-resisting	158,000	68,500	--	--	--	234,000
Full alloy	104,000	17,100	--	--	--	277,000
Tool	103,000	W	--	--	--	103,000
Total	408,000	247,000	--	--	9,100	664,000
Cast irons (gray, malleable, and ductile iron)	W	19,800	--	--	763	20,600
Superalloys	60,500	W	--	(3)	112,000	172,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	117	5,730	--	--	2,970	8,810
Mill products made from metal powder ⁴	--	--	--	--	95,100	95,100
Cemented carbides and related products ⁵	--	--	--	--	26	26
Chemical and ceramic uses:						
Pigments	--	--	W	--	W	W
Catalysts	77,300	--	W	--	W	77,300
Other	--	--	--	--	--	--
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	13,500	13,500
Other	1,090	30,000	78,400	--	18,900	128,390
Grand total	547,000	302,000	78,400	--	252,000	1,180,000
Stocks, April 30, 2003	379,000	222,000	5,890	16,600	862,000	1,490,000

¹Revised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes calcium molybdate.

³Included in "Other" of the "Superalloys" category.

⁴Includes ingot, wire, rod, and sheet.

⁵Includes construction, mining, oil and gas, metal working machinery.

TABLE 4
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES
(including roasted concentrate), BY COUNTRY¹

(Kilograms, gross weight molybdenum)

Country	2002	2003		
	January- December ^p	February	March	Year to date
Australia	46,900	3,000	11,500	14,500
Belgium	4,380,000	276,000	214,000	608,000
Brazil	32,600	4,330	6,000	11,100
Canada	1,080,000	128,000	140,000	392,000
Chile	16,200	1,210	--	8,210
China	56,700	--	--	--
Germany	64,400	--	--	--
India	141,000	--	430	11,300
Italy	47,900	5,670	--	5,670
Japan	1,130,000	75,400	245,000	381,000
Korea, Republic of	70,600	3,300	7,710	14,900
Mexico	484,000	424,000	349,000	1,150,000
Netherlands	7,330,000	472,000	675,000	1,720,000
Spain	41,200	--	--	--
Sweden	35,000	--	9,640	9,640
Taiwan	12,600	3,400	6,190	9,590
United Kingdom	4,330,000	289,000	526,000	1,260,000
Other	153,000	8,830	15,900	27,000
Total	19,500,000	1,690,000	2,210,000	5,610,000

^pPreliminary. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY¹

(Kilograms, contained molybdenum)

Country	2002	2003		
	January- December ^p	February	March	Year to date
Australia	--	--	--	273
Canada	597,000	34,300	59,400	139,000
Chile	240	--	--	--
Denmark	5,110	--	--	--
Japan	--	--	61	61
Mexico	51,400	--	7,590	7,590
Netherlands	--	25,500	--	25,500
Switzerland	21,800	--	--	--
Taiwan	274	--	--	--
Total	676,000	59,800	67,100	173,000

^pPreliminary. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS¹

(Kilograms, unless otherwise specified)

Material	January-December 2002 ^p			March 2003		
	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)	Gross weight	Contained molybdenum	Value (c.i.f.) (thousands)
Ore and concentrates roasted	7,030,000	4,370,000	\$33,500	372,000	235,000	\$1,840
Ore and concentrates other	664,000	340,000	3,450	160,000	73,700	614
Molybdenum chemicals:						
Oxides and hydroxides	1,200,000	NA	7,660	134,000	NA	878
Molybdates of ammonium	1,740,000	1,010,000 ^r	11,200	135,000	75,900	836
Molybdates (all others)	435,000	88,600	1,630	17,200	5,500	44
Molybdenum orange	1,300,000	NA	5,490	68,700	NA	332
Ferromolybdenum	5,570,000	3,590,000	31,400	614,000	399,000	3,600
Molybdenum powders	39,500	31,700	1,110 ^r	4,060	4,060	156
Molybdenum unwrought	43,500 ^r	43,200	542 ^r	15,100	15,100	171
Molybdenum waste and scrap	697,000	617,000	6,910	48,900	46,600	533
Molybdenum wire	14,600	NA	697	1,070	NA	93
Molybdenum other	84,800 ^r	NA	7,240 ^r	10,700	NA	825
Total	18,800,000	10,100,000 ^r	111,000 ^r	1,580,000	855,000	9,920

^rRevised. ^pPreliminary. NA Not available.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.